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Factors Associated with Antenatal Visits and Delivery Habits of Pregnant Women Attending the Free Maternal Health Care Program at a Secondary Health Care Centre in South West Nigeria

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ABSTRACT

Background: Despite efforts made by the Nigerian government and international organizations to improve maternal health care, Nigeria still has one of the highest maternal mortality rates in the world, ranking second. Evidence suggests that Nigeria's low rates of maternity healthcare usage continue to contribute to the high maternal mortality ratio. This study aims to assess the low utilization of free maternal health services among pregnant women.

Objective: The major objective of this study is to examine the factors that affect antenatal visits and delivery habits of pregnant women.

Method: The study's sample comprised 522 women who registered under the Free Maternal Health care program at the Seventh-day Adventist Hospital in Ile-Ife, Nigeria. This research is cross-sectional and facility-based. The participants were consecutively sampled. A structured questionnaire was used to obtain data. Descriptive and inferential statistics were done.

Result: The respondents were predominantly young (18–34 years), married, Christian, and had secondary education, with near-universal lack of health insurance coverage. Place of delivery was significantly associated with marital status and income, but not with age, religion, or education. Adequate antenatal care attendance (≥5 visits) was significantly influenced only by income, while age, marital status, religion, and educational level showed no significant associations.

Conclusion: In conclusion, targeted maternal health programs should prioritize young and first-time mothers, ensuring they receive clear guidance on the recommended timing and frequency of prenatal care visits to improve service utilization.

Keywords: Maternal Health; Pregnant Women; Antenatal Care; Health Care Utilization; Institutional Delivery; Delivery Habits; Health-Seeking Behavior; Obstetric Care; Free Health Care Program; Seventh-Day Adventist Hospital.

1.0. Introduction

Despite efforts made by the Nigerian government and international organizations to improve maternal health care, Nigeria still has one of the highest maternal mortality rates in the world, ranking second with a mortality rate of 576 deaths per 100,000 live births (Olonade et al., 2019) according to the global statistics on maternal mortality. This is about double the global average of 216 deaths per 100,000 live births (Bettencourt P.J, 2021). About 800 women died every day from pregnancy and childbirth-related, avoidable causes in 2020 (Gurara MK, Draulans V, Jacquemyn Y, 2024). It is estimated that about 80 percent of maternal deaths that occur today are a result of preventable causes that might be averted if women had timely access to and proper utilization of skilled maternal services (N.P. Tey, 2013).

World Health Organization (2016) refers to maternal health as the well-being of women during pregnancy, childbirth, and the postpartum period. This is becoming a global priority because maternal healthcare services can save the lives of millions of women who are of reproductive age (Kifle, 2017). The aim is to reduce maternal

mortality and morbidity by ensuring that pregnant women stay healthy throughout pregnancy, give birth to healthy babies, and recover fully from the physiological changes that occur during pregnancy (E. Arthur 2012).

Maternal Health Care Services (MHCS) include prenatal care, skilled delivery attendance, and postnatal care, alongside health education programs offered during pregnancy, birth, and the postpartum period (Kitila SB 2023). Additionally, it covers preconception, pregnancy, delivery, and postpartum care, among other aspects of family planning (Olgun, A. S., and Medeni, 2026). Preventive, promotional, and early detection of women who are at high risk of disease and mortality during pregnancy, labor, and postpartum are the key objectives of maternal healthcare services (Olgun, A. S., and Medeni, 2026).

Azuh DE et al. (2017) reported that the high rate of maternal mortality is caused by several variables, including high levels of poverty, poor access to high-quality healthcare, a shortage of skilled birth attendants, and risky abortion procedures. Variables such as educational status, maternal age, and occupation of pregnant women have been identified to be potent factors associated with the utilization of maternal healthcare services (Fagbamigbe and Idemudia, 2017; Yakubu et al., 2025).

Evidence suggests that Nigeria's low rates of maternity healthcare usage continue to contribute to the high maternal mortality ratio (Olubodun et al., 2025). This maternal mortality ratio is heightened in rural areas because of the mass poverty, ignorance, disease, and low status of women, resulting in a high population growth rate. Some of the factors identified to influence maternal healthcare utilization behaviors among pregnant women in Nigeria include Socioeconomic status, Cultural beliefs and practices, Education level, Geographic location, Health system factors, and Religious and personal beliefs. To improve maternal healthcare utilization behaviors in Nigeria, there is a need to address these factors through targeted interventions such as increasing access to health facilities, improving the quality of care, increasing awareness and education about the importance of maternal healthcare, and addressing cultural and religious beliefs that may hinder women from seeking care. There is a paucity of studies reporting maternal healthcare service utilization among pregnant women benefiting from free maternal healthcare services serving rural communities in the state; hence, the study aims to assess how the Free Maternal Healthcare program, ongoing at Seventh Day Adventist Hospital influence maternal health utilization of pregnant women accessing care and identify the factors affecting it.

1.1. Study Objectives

1) To assess the frequency and adequacy of antenatal care (ANC) visits among pregnant women enrolled in the free maternal health care program at Seventh Day Adventist Hospital, Ile-Ife.
2) To evaluate the delivery habits of pregnant women, including place of delivery (hospital vs. home), type of birth attendant, and mode of delivery.
3) To identify socio-demographic factors (such as age, education level, marital status, income, and occupation) associated with antenatal visit attendance and delivery choices.
4) To examine the influence of the free maternal health care program on utilization of antenatal and delivery services among pregnant women.

5) To determine barriers and facilitators affecting adequate antenatal care attendance and health facility-based delivery.

2.0. Methodology

2.1. Study Design: This research is cross-sectional and facility-based.

2.2. Sampling Size and Sampling Technique: The sample size was calculated using the Leslie Kish formula under the following presumptions: a 95% confidence level with a corresponding standard normal deviation of 1.96; a desired precision of 5%; and a prevalence of maternal healthcare service-seeking behaviour among women of 41.9% from a comparable study. The minimal sample size was estimated as 413 participants. Consecutive sampling was used to recruit 522 women who registered for antenatal care during the period of the study. All the women who gave consent were included during their bakery visit; those who were too ill to participate were excluded.

2.3. Site and Population: This study was conducted among pregnant women attending a free maternal health care program in Seventh Day Adventist Hospital, Ile Ife, Nigeria, a mission hospital that provides primary and secondary care. The hospital organized a free maternal healthcare program for a period of 1 year, which entailed antenatal care and delivery services. The antenatal clinic runs twice a week, led by a consultant obstetrician. An average of 50 were seen weekly at the Antenatal Clinic.

2.4. Data Collection: A structured questionnaire was used to collect data from respondents. Additionally, secondary information was gathered from the antenatal clinic records to determine the number of visits for their current pregnancy. Before entering the data, each completed questionnaire was reviewed for completeness.

2.5. Data Analysis: The dependent variables include the frequency of antenatal clinic visits, the week of the first presentation, and knowledge of maternal and child health information. Data analysis was carried out using the Social Science Statistical Package version 20.

Descriptive statistics were used to summarize the data. Association between categorical variables was assessed using chi square Test. A p-value less than 0.05 was considered a level of significance.

3.0. Results

Table 1. Frequency and percentage distribution of socio-demographic characteristics of respondents.

Variables	Frequency n (Percentage %)
Age	
less than 18	7(1.3)
18-34	390(74.7)
35-39	112(21.5)
40-44	13(2.5)
Marital Status	
Married	478(91.6)

Single Parent	37(7.1)
Divorced	7(1.3)
Education	
Not Educated	12(2.3)
Primary Education	24(4.6)
Secondary Education	224(42.9)
NCE/Diploma	131(25.1)
BSC/HND	121(23.2)
Master's Degree and Above	10(1.9)
Religion	
Christianity	387(74.1)
Islam	134(25.7)
Traditional	1(0.2)
Household Income	
Below 30000	128(24.5)
30000-50000	330(63.2)
Health Insurance Scheme	
Yes	2(0.4)
No	520(99.6)
Parity	
1 Child	185(35.4)
2 or more Children	337(64.6)

As shown in Table 1 The age distribution shows that the majority of participants were aged 18–34 years, accounting for 390 respondents (74.7%). 7 (1.3%). Most respondents were married, 478 (91.6%), while 37 (7.1%) were single parents. In terms of educational attainment, the largest proportion had secondary education, 224 (42.9%). Regarding religion, the majority of respondents were Christians, 387 (74.1%), while 134 (25.7%) practiced Islam. Only 2 respondents (0.4%) were enrolled in a health insurance scheme, while the vast majority 520 (99.6%), and were not.

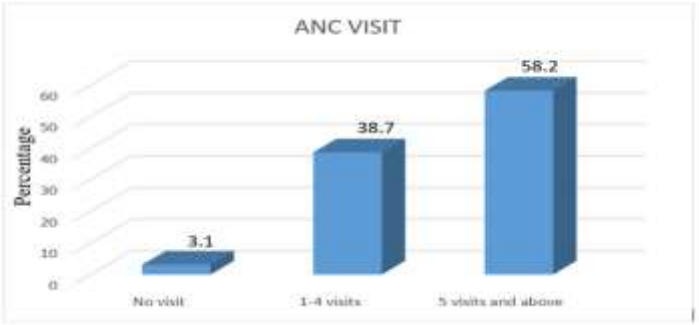

Figure 1. Percentage of Antenatal Visits

The distribution of antenatal care (ANC) attendance shows that the majority of respondents (58.2%) reported five or more visits, indicating relatively good utilization of ANC services. However, a substantial proportion (38.7%) attended only one to four visits, which falls below recommended levels and suggests suboptimal continuity of care for many women. Although a small fraction (3.1%)

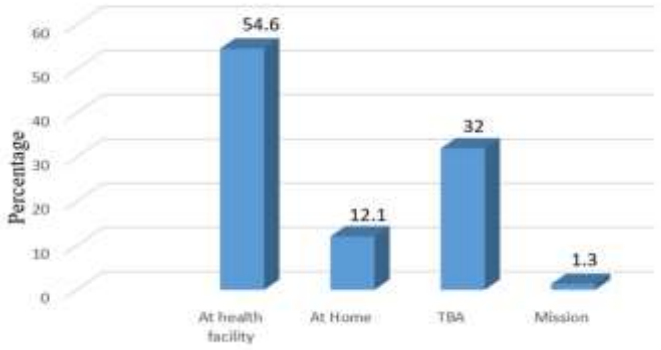

Figure 2. Percentage of Place of last delivery

Regarding the place of last delivery, 285 respondents (54.6%) delivered at health facilities. Others were delivered with traditional birth attendants (TBA), 167 (32.0%), at home, 63 (12.1%), or at mission homes, 7 (1.3%).

Table 2. Association between Socio-demographic Characteristics and Place of Last Delivery of respondents

Variables	**Place of Last delivery**		**p-value**	χ^2
	Health Facility	Not a Health Facility		
Age				
Less than 34 years	212(53.4)	185(46.6)	0.959	0.355
35 years and above	73(58.4)	52(41.6)		
Marital Status				
Ever Married	259(53.4)	226(46.6)	0.047	3.946
Never Married	26(70.3)	11(29.7)		
Religion				
Christianity	216(55.8)	171(44.2)	0.893	0.36
Islam	69(51.1)	66(48.9)		
Income				
Less than 30,000	88(50)	88(50)	0.034	2.264
Above 30,000	197(56.9)	149(43.1)		
Education				
Not Educated	6(50)	6(50)	0.912	0.831
Primary Education	11(45.8)	13(54.2)		
Secondary Education	124(55.4)	100(44.6)		
Tertiary Education	144(55)	118(45)		

From Table 2, the association between selected socio-demographic characteristics and place of last delivery was examined using the chi-square test. Maternal age was not significantly associated with place of last delivery (χ^2 = 0.355, p = 0.959). Among women aged less than 34 years, 53.4% delivered in a health facility, compared with 58.4% of those aged 35 years and above. Marital status showed a statistically significant association with place of last delivery (χ^2 = 3.946, p = 0.047). A higher proportion of never-married women delivered in a health facility (70.3%) compared with ever-married women (53.4%). Religion was not significantly associated with place of last delivery (χ^2 = 0.360, p = 0.893). Health facility delivery was reported by 55.8% of Christian respondents and 51.1% of Muslim respondents.

Monthly income shows a significant association with place of last delivery (χ^2 = 2.264, p = 0.034). Women earning above 30,000 were more likely to deliver in a health facility (56.9%) than those earning less than 30,000, among whom equal proportions delivered in health facilities and non-health facilities (50.0% each). Educational attainment was not significantly associated with place of last delivery (χ^2 = 0.831, p = 0.912). Health facility delivery was reported by 50.0% of women with no formal education, 45.8% with primary education, 55.4% with secondary education, and 55.0% with tertiary education.

Table 3. Association between Socio-demographic Characteristics and Antenatal Care (ANC) Attendance of respondents.

Variables	**ANC 2 Categories**		χ^2	**p-value**
	Less than or equal to 4 visits	5 visits and above		
Age				
Less than 34 years	167 (42.1)	230(57.9)	0.063	0.802
35 years and above	51(40.8)	74(59.2)		
Marital Status				
Ever Married	203(41.9)	282(58.1)	0.252	0.616
Never Married	15(40.5)	22(59.5)		
Religion				
Christianity	158(40.8)	229(59.2)	0.877	0.349
Islam	60(44.4)	75(55.6)		
Income				
Less than 30,000	82(46.6)	94(53.4)	2.545	0.021
Above 30,000	136(39.3)	210(60.7)		
Education				
Not Educated	5(41.7)	7(58.3)	0.707	0.872
Primary Education	12(50.0)	12(50.0)		
Secondary Education	92(41.1)	132(58.9)		
Tertiary Education	109(41.6)	153(58.4)		

From Table 3 above, the association between selected socio-demographic characteristics and antenatal care (ANC) attendance categories (≤5 visits versus ≥6 visits) was examined using chi-square analysis. Age was not significantly associated with ANC attendance, as women aged ≤34 years (57.9%) and those aged ≥35 years (59.2%) had comparable proportions of six or more visits ($\chi^2 = 0.063$, $p = 0.802$). Similarly, marital status showed no significant relationship with ANC utilization; both ever-married (58.1%) and never-married women (59.5%) demonstrated similar levels of adequate ANC attendance ($\chi^2 = 0.252$, $p = 0.616$).

Religion was also not significantly associated with ANC attendance, with comparable proportions of women with ≥6 visits among Christians (59.2%) and Muslims (55.6%) ($\chi^2 = 0.877$, $p = 0.349$). In contrast, income demonstrated a statistically significant association with ANC attendance. Women earning above 30,000 were more likely to have six or more ANC visits (60.7%) compared with those earning less than 30,000 (53.4%) ($\chi^2 = 2.545$, $p = 0.021$).

Educational status was not significantly related to ANC attendance. Across all levels of education—no formal education, primary, secondary, and tertiary—the proportion of women with six or more ANC visits remained similar, with no statistically significant difference observed ($\chi^2 = 0.707$, $p = 0.872$). Overall, income emerged as the only socio-demographic factor significantly associated with adequate ANC utilization in this analysis.

4.0. Discussion

This study provides important insights into the socio-demographic characteristics of respondents and their relationship with place of delivery and antenatal care (ANC) utilization. The findings reflect prevailing maternal health patterns in many low- and middle-income countries (LMICs), particularly in sub-Saharan Africa.

The majority of respondents were aged 18–34 years (74.7%), representing the peak reproductive age group. Women aged 35 years and above constituted 24.0%, while adolescents (<18 years) represented only 1.3%. This age distribution aligns with demographic patterns in Nigeria, where fertility is concentrated within the 20–34-year age group (National Population Commission [NPC] and ICF, 2019). The predominance of women within the optimal reproductive age range may partly explain the relatively high ANC attendance observed.

Educational attainment was relatively high, with 67.2% having at least secondary education and 50.2% possessing post-secondary qualifications (NCE/Diploma or higher). Education is a well-established determinant of maternal healthcare utilization, as it enhances health literacy, autonomy, and decision-making capacity (Gabrysch and Campbell, 2009).

Household income distribution showed that 63.2% earned between ₦30,000 and ₦50,000 monthly, while 24.5% earned below ₦30,000. Only 12.3% reported earnings above ₦50,000. These findings indicate that a substantial proportion of respondents fall within low- to middle-income brackets, which may influence healthcare affordability. Financial barriers remain a critical constraint to maternal health service utilization in Nigeria (Olubodun et al., 2025); however, the Free Maternal Healthcare Programme at Seventh-day Adventist Hospital, Ile-Ife, has significantly reduced financial barriers to accessing essential maternal health services. For many low-income women, out-of-pocket costs associated with antenatal care, skilled delivery, laboratory investigations, and medications constitute a major deterrent to facility-based care. By eliminating or substantially reducing these

costs, the initiative has enabled women who would otherwise rely on home delivery or traditional birth attendants to access skilled obstetric care represents a vital intervention that supports low-income women, improves maternal health indicators, and contributes meaningfully to the reduction of maternal and neonatal mortality in the community.

Slightly more than half (54.6%) of respondents delivered their last child in a health facility, while 45.4% delivered outside formal facilities (home, TBA, or mission houses). Notably, 32.0% utilized traditional birth attendants (TBAs), underscoring the continued reliance on informal providers. Despite global efforts to promote skilled birth attendance, home and TBA deliveries remain common in Nigeria (World Health Organization [WHO], 2016; NPC and ICF, 2019). Cultural familiarity, perceived affordability, and accessibility often drive TBA patronage (Gabrysch and Campbell, 2009). Age was not significantly associated with place of delivery, suggesting comparable health facility utilization across age groups. This finding contrasts with some studies indicating that older women may prefer home delivery due to prior childbirth experience (Fagbamigbe and Idemudia, 2016). Marital status demonstrated a statistically significant association: never-married women were more likely to deliver in health facilities (70.3%) than ever-married women (53.4%). This may reflect heightened perceived vulnerability or reduced family influence among unmarried women, prompting greater reliance on formal healthcare. Income was also significantly associated with place of delivery ($p = 0.034$). Women earning above ₦30,000 were more likely to deliver in health facilities (56.9%) than those earning less (50.0%). Financial capacity reduces out-of-pocket expenditure constraints and facilitates transportation and service access, consistent with previous findings (Olubodun et al., 2025).

Education, although positively patterned toward facility delivery, did not show a statistically significant association. This may suggest that other structural barriers—such as distance, quality of care, or health system inefficiencies—moderate the effect of education in this context. ANC attendance was generally high, with 92.0% reporting at least two visits and 57.9–59.2% achieving 5 or more visits across age categories. Only 3.1% reported no ANC attendance. These rates exceed national averages reported in the Nigeria Demographic and Health Survey (NPC and ICF, 2019), possibly reflecting improved service accessibility in the study area. Age, marital status, religion, and education were not significantly associated with attending six or more ANC visits (Kumar et al., 2025). This suggests relatively equitable ANC utilization across demographic strata. Income, however, showed a statistically significant association. Women earning above ₦30,000 were more likely to attend 6 or more visits (60.7%) than those earning less (53.4%). Even modest financial differences can influence continuity of care, especially in settings where indirect costs—transport, time, and informal payments—remain substantial (WHO, 2016). A striking finding is the extremely low health insurance enrollment (0.4%). Despite Nigeria's National Health Insurance Scheme (NHIS), coverage remains limited, particularly among informal sector workers (Aregbeshola and Khan, 2018). The near-total reliance on out-of-pocket payments likely contributes to income-based disparities observed in delivery and ANC utilization.

The findings underscore that while ANC uptake appears encouraging, facility-based delivery remains suboptimal. Income consistently emerged as a significant determinant of both skilled delivery and adequate ANC attendance,

highlighting persistent financial barriers. Expanding health insurance coverage and implementing targeted financial protection mechanisms may substantially improve maternal service utilization. (Kumar et al., 2025)

Moreover, the substantial reliance on TBAs suggests the need for strategic integration, training, and referral linkage with formal health systems (Grace A et al., 2024). Strengthening community education, improving perceived quality of care, and addressing systemic barriers will be critical to advancing maternal health outcomes in line with the Sustainable Development Goal (Singh R. et al., 2025).

5.0. Conclusion and Recommendation

This study demonstrates that the Free Maternal Healthcare Programme at Seventh-day Adventist Hospital, Ile-Ife, has substantially improved antenatal care utilization among pregnant women, particularly by reducing financial barriers for low-income groups. Despite high ANC attendance, facility-based delivery remains suboptimal, with continued reliance on traditional birth attendants. Income emerged as the most consistent determinant of both skilled delivery and adequate ANC attendance, underscoring the persistent role of economic constraints. Strengthening financial protection mechanisms, expanding health insurance coverage, and integrating community-based providers into formal referral systems are critical to improving uptake of skilled delivery and advancing maternal health outcomes in rural Nigerian settings.

From the study, these are future recommendations:

1. Strengthen community-based health education to improve awareness of early and regular antenatal care and the importance of health facility-based delivery.
2. Encourage pregnant women to initiate antenatal care early and maintain consistent visits throughout pregnancy to enhance maternal and neonatal outcomes.
3. Improve accessibility and convenience of maternal health services by addressing barriers like transportation challenges, long waiting times, and inflexible clinic schedules.
4. Enhance the quality of care under the free maternal health care program through regular training and supervision of healthcare workers to ensure respectful and patient-centered services.
5. Design targeted interventions for vulnerable groups, particularly women with low socio-economic status and limited education, to improve service utilization.
6. Promote male partner and family involvement to influence healthcare-seeking behavior among pregnant women positively.

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Competing Interests Statement

All of the authors have declared that no competing financial, professional, or personal interests exist

Consent for publication

All the authors contributed to the manuscript and consented to the publication of this research work.

Availability of data and material

Materials used for this study, such as questionnaires, are available from the authors upon reasonable request.

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